AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Listing of Claims:

1.   (Currently Amended) An industrial control system, comprising:

a processor;

a computer readable storage medium operationally coupled to the processor and storing computer executable instructions, the computer executable instructions, when executed by the processor, implement components comprising:

a primary aggregation component associated with an industrial controller, the primary aggregation component is created, via the processor, and defined in response to a query received from an entity remote to the industrial controller and is installed on the industrial controller, the primary aggregation component aggregates ~~one or more~~ a plurality of selected data items stored in the industrial controller into an aggregated subset of data items ~~according to a memory address of a first data item in a group, followed by a length and then followed by values relating to the data items in the group~~;

a communications component associated with the remote entity, the communications component ~~transmits~~ reads the aggregated subset of data items *via* a singular communications packet across a network, the communications component causes addition of [[and adds]] at least one secondary aggregation component at the industrial controller in response to ~~based upon at least one of~~ increased data demands ~~and network protocol considerations~~, wherein the communication component causes removal of the at least one secondary aggregation components in response to decreased data demands; and

an update component associated with the remote entity, the update component receives handle information from the industrial controller across the network relating to the plurality of selected data items, the update component [[and]] employs ~~only~~ the handle information ~~as a reference with consistent length~~ to generate an update data packet request that is transmitted across the network to the industrial controller to update ~~data locations~~ one or more data items of the aggregated subset of data items in the industrial controller, wherein the handle information

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provides a fixed length reference pointer to a memory address in the industrial controller for each of the variable length tag references, wherein the update data packet request employs the fixed length reference pointer in place of a variable length tag reference for each of the one or more data items of the aggregated subset of data items that are to be updated.

2.   (Previously Presented) The system of claim 1, the entity is a client application that selects and requests the subset of data items from the controller.

3.   (Original) The system of claim 2, the client application is at least one of a data logging application and a Human and Machine Interface (HMI) that interacts with the industrial controller.

4.   (Original) The system of claim 2, further comprising a communications server adapted to interact with the client application, the network and the industrial controller, the industrial controller including a communications driver to interface with the communications server and the network.

5.   (Currently Amended) The system of claim 1, the communications component sends a data request to the industrial controller relating to the aggregated subset of data items.

6.   (Currently Amended) The system of claim 5, the industrial controller sending a response to the request including at least one of tag and value information associated with the tag, the tag and value information relating to the aggregated subset of data items.

7.   (Previously Presented) The system of claim 6, the communications component employing the tag and value information received in the response to build the primary aggregation component on the industrial controller.

8.   (Cancelled)

9.   (Cancelled)

10.   (Previously Presented) The system of claim 1, further comprising at least one of dynamically increasing and decreasing the amount of selected data items in the primary aggregation component based upon data demands received from the network.

11.   (Previously Presented) The system of claim 1, the primary aggregation component is an object including at least one of class attributes, instance attributes, services and a data buffer.

12.   (Original) The system of claim 11, the class attributes supply information such as revision level information of the object, an instance number, and a number of instances of an associated class.

13.   (Currently Amended) The system of claim 11, the instance attributes include setting for at least one of object update times, event triggers, whether to update the object based on rate, demand and other criteria, where in a data stream triggers are located, whether to continue on an overflow, number of drivers currently installed, timestamp information, size of buffers, start times, [[and]] or object lifetime settings.

14.   (Currently Amended) The system of claim 11, the services include at least one of Get All Attributes, Get All List, Set Attributes List, Reset, Start, Stop, Create Object [[and]] or Delete Object.

15.   (Currently Amended) The system of claim 11, the data buffer including at least one of 1 to L data items, L being an integer greater than 1, and includes at least one of the following types: single valued elements, bit, byte, 16 bit, 32 bit, greater than 32 bit configurations, unsigned integers, signed integers, floating point elements, single dimension array, multiple dimension array configurations, [[and]] or user defined tags (UDT).

16.   (Currently Amended) The system of claim 15, the single valued elements include at least one of a tag identifier [[and]] or an associated value.

17.   (Currently Amended) The system of claim 15, the single dimension arrays include at least one of an array element ID, a value, a begin array element ID [[and]] or a length.

18.   (Previously Presented) The system of claim 1, further comprising removing the primary aggregation component based upon at least one of a loss of communications and a connection timeout.

19.   (Previously Presented) The system of claim 1, further comprising removing the primary aggregation component based upon an explicit command.

20.   (Cancelled)

21.   (Currently Amended) A method to facilitate data communications with an industrial controller, comprising:

     employing a processor executing computer executable instructions stored on a computer readable storage medium to implement the following acts:

     requesting tag information from a controller across an industrial control network for a plurality of selected data items in the controller;

     building an aggregation object from the tag information provided by the controller;

     installing the aggregation object on the controller;

     installing at least one secondary aggregation component on the controller upon increased data demands;

     removing the at least one secondary aggregation components upon decreased data demands;

     updating aggregation object data on the controller;

     ~~adding data items of interest to the object, the data items arranged according to at least one of contiguous or non-contiguous address memory locations; and~~

     receiving data from the aggregation object that has been updated by the controller via a singular communication packet;

receiving handle information from the ~~industrial~~ controller relating to the <u>plurality of</u> selected data items<u>, wherein the handle information provides a fixed length reference pointer to a memory address in the controller for each of the plurality of selected data items</u>; and

employing only the handle information ~~as a reference with consistent length~~ to generate an update data packet <u>that is transmitted across the network to the controller</u> to update ~~data locations~~ <u>the plurality of selected data items</u> in the controller<u>, wherein the update data packet employs the fixed length pointer in place of a variable length tag reference for each of the plurality of selected data items that are to be updated.</u>

22.   (Cancelled)

23.   (Cancelled)

24.   (Original) The method of claim 21, further comprising updating the object *via* at least one of a periodic occurrence, an event driven occurrence, and a request.

25.   (Original) The method of claim 21, further comprising removing the object from the controller when a client no longer requests data items of interest.

26.   (Original) The method of claim 25, further comprising removing the object based upon at least one of an event and network connections being disrupted for a time period that is greater than a predetermined amount of time that is configured at the controller.

27.   (Original) The method of claim 21, further comprising placing data items of interest in a scanning list.

28.   (Original) The method of claim 27, the list indicates which data items are to be periodically updated for a client application.

29.   (Cancelled)

30.   (Cancelled)

31.   (Currently Amended) A system to facilitate data communications with an industrial controller, comprising:

a processor;

a computer readable storage medium storing computer executable instructions, the computer executable instructions, when executed by the processor, implement components comprising:

means for requesting, by the processor, tag identifiers from a controller across a communications network, wherein the tag identifiers are associated with a plurality of selected data items in the controller;

means for constructing an aggregation object optimized data packet from the tag identifiers requested from the controller;

means for installing the aggregation object optimized data packet on the controller, wherein the means for installing installs at least one secondary aggregation component on the controller upon increased data demands and removes the at least one secondary aggregation components upon decreased data demands;

means for refreshing the aggregation object optimized data packet on the controller;

means for adding data items of interest to the data packet, the data items arranged according to at least one of contiguous or non-contiguous address memory locations;

means for transmitting data across the communications network from the optimized data packet that has been refreshed by the controller; and

means for updating the controller *via* employment of handle information to generate an update data packet that is transmitted across the network to the controller to update the plurality of selected data items in the controller, wherein the handle information provides a fixed length reference pointer to a memory address in the controller for each of the plurality of selected data items that are to be updated, wherein the update data packet employs the fixed length reference pointer in place of the tag identifier for each of the plurality of selected data items that are to be updated as a reference with consistent length.

32.   (Cancelled)

33.   (Currently Amended) An industrial controller, comprising:

a processor;

a computer readable storage medium storing computer executable instructions, the computer executable instructions, when executed by the processor, implement components comprising:

a first component that processes information received from a remote entity across a network;

a primary aggregation component that aggregates a plurality of ~~one or more~~ selected data items into an aggregated subset of data items ~~according to a memory address of a first data item in a group, followed by a length and then followed by values relating to the data items in the group~~, the primary aggregation component defined and installed at the industrial controller by an entity remote from the industrial controller;

a communications component associated with the entity remote from the controller, the communications component ~~transmits~~ reads the subset of data items *via* a singular communications packet across [[a]] the network, the communications component causes addition of [[and adds]] at least one secondary aggregation component at the industrial controller ~~based~~ upon ~~at least one of~~ increased data demands ~~and network protocol considerations~~, wherein the communication component causes removal of the at least one secondary aggregation components upon decreased data demands; and

a update component associated with the entity remote from the industrial controller, the component receives handle information from the industrial controller relating to the selected data items and employs the handle information ~~as a reference with consistent length~~ to generate an update data packet request that is transmitted across the network to the industrial controller to update ~~data locations~~ the plurality of data items of the aggregated subset of data items in the industrial controller, wherein the handle information provides a fixed length reference pointer to a memory address in the controller in place of a variable length tag reference for each of the plurality of selected data items that are to be updated, wherein the update data packet employs the fixed length reference pointer for the plurality of selected data items that are to be updated.

34.   (Original) The controller of claim 33, the first component is a processor adapted to provide access to a variable memory associated with the controller, the variable memory storing the one or more selected data items.

35.   (Original) The controller of claim 34, the processor interacts with the communications component to aggregate and transmit the subset of data items, the communications component is a communications driver configured for the network.

36.   (Currently Amended) The controller of claim 35, the network is at least one of an Ethernet, ControlNet, a DeviceNet, RS-232, RS-422, or RS-485.

37.   (Original) The controller of claim 35, the communications driver adapted to communicate with a communications server associated with a client application.

38.   (Original) The controller of claim 37, the client application is a Human and Machine Interface (HMI).

39.   (Original) The controller of claim 37, the communications server installs the aggregation component on the industrial controller.